and sulphate of duboisine gave the best results. For a time at least they diminished the tremor and relieved insomnia.

On Black Urine.—A. E. Garrod (*Practitioner*, March, 1904, p 383) prefaces an interesting paper on the above subject, with an historical account of the condition. Black urine was described by Hippocrates and others before him. The data in these early cases are too meagre to afford a plausible explanation for their causes. In some of the later cases the descriptions are sufficiently full to conclude that hæmoglobin or admixture of blood, bile pigments, coloring matters from eating certain fruits, and the abnormal constituents of the urine in alkaptonuria were the causes of the discoloration.

Garrod states that in the following conditions the urine is dark-colored on voiding or becomes black on standing: (1) in cases of jaundice, especially when of long standing; (2) hæmaturia; (3) hæmoglobinuria; (4) hæmatoporphyrinuria; (5) melanotic sarcoma; (6) alkaptonuria; (7) ochronosis; (8) in cases in which abundance of indican (indoxyl sulphate) is present; (9) in certain cases of phthisis, only after standing for some time; (10) in certain rare cases of undetermined nature; (11) after the taking of certain drugs and articles of diet (including carboluria). In only a few conditions, such as alkaptonuria and melanuria, does the urine become actually black, and then only on standing.

Some of the above conditions are deserving of special comment. In hæmatoporphyrinuria the urine is usually of a port-wine color, but may be actually black. The color is only in part due to the hæmatoporphyrin. There are other dark abnormal pigments present. The great majority of the cases of this condition are due to the toxic action of overdoses of sulphonal and its allies. Hæmatoporphyrin is recognized by certain characteristic absorption bands on spectroscopic examination.

The melanuria of melanotic sarcoma is rare, and Garrod supports the observation of others, that it does not occur when the growth is limited to its primary seat or to a neighboring group of lymphatic glands, but only when the internal viscera, particularly the liver, are involved. The urine is usually of a normal color when passed, but darkens from the surface downward on exposure to the air. The addition of nitric acid to the cold urine at once produces blackness. Ferric chloride also causes immediate blackening and a gray precipitate which forms is redissolved by an excess of the reagent.

The urine in alkaptonuria behaves in the same way as that in melanuria does on exposure to the air. The darkening is hastened by the addition of an alkali. The urine reduces Fehling's solution and ammoniacal silver nitrate solution in the cold. It does not reduce bismuth solutions and does not ferment, and is thus distinguishable from diabetic urine. The abnormal substance which produces the characteristic reaction is homogentisic acid, first discovered by Baumann and Wolkow.

In the rare condition known as ochronosis, or pigmentation of the cartilages, first described by Virchow in 1866, the urine may be dark in color. Of 7 cases reported, the urine darkened in 3. In 2 additional cases recently reported by Osler the patients were also shown to be alkaptonurics. Garrod thinks, however, that homogentisic acid is not the only substance causing blackening of the urine in ochronosis.

The writer states that although the dark urine of indicanuria is not of infrequent occurrence, it is not so well recognized as it should be. He believes that many cases are mistaken for other conditions, and particularly for melanuria. The color is not due to the indigo pigments nor to indoxyl sulphates, which are colorless substances, but, as Baumann and Brieger showed, to higher oxidation products of indol. These urines blacken when warmed with nitric acid, but there is no such immediate blackening in the cold, as with true melanuria. They do not blacken with ferric chloride, and by this test they may be at once distinguished from those containing melanogen. Any morbid process which leads to abundant excretion of indican may give rise to such urine, as, for example, intestinal obstruction from any cause, excessive bacterial activity in the intestine, or putrefactive changes in collections of pus.

SURGERY.

UNDER THE CHARGE OF
J. WILLIAM WHITE, M.D.,
JOHN RHEA BARTON PROFESSOR OF SURGERY IN THE UNIVERSITY OF PENNSYLVANIA;
SURGEON TO THE UNIVERSITY HOSPITAL,
AND
F. D. PATTERSON, M.D.,
SURGEON TO THE X-RAY DEPARTMENT OF THE HOWARD HOSPITAL; CLINICAL ASSISTANT TO THE
OUT-PATIENT SURGICAL DEPARTMENT OF THE JEFFERSON HOSPITAL.

The Significance of the Zoological Distribution, the Nature of the Mitoses, and the Transmissibility of Cancer.—BASHFORD and MURRAY (*The Lancet*, February 13, 1904) state that within the past year specimens of malignant new-growths have accumulated from all the domesticated animals and from many other vertebrates. The clinical, pathological, anatomical, and microscopic characters of these new-growths are identical with those found in man in all essential features, although the animals themselves are drawn from the different classes of the vertebrate phylum. Stated generally, it may be said that malignant new-growths are frequent according as animals are carefully examined, and are unrecorded in forms which are difficult to examine or do not reach old age in considerable numbers. The figures are not sufficiently extensive to determine accurately the age incidence of the various types of new-growths in different animals, but a relatively higher incidence in old age is apparent.

In regard to the phenomena of cell division in malignant new-growths the following points are of great importance: A complicated sequence of cell changes has been found to be characteristic of carcinoma and sarcoma alike. This sequence is the same as that which initiates the origin of the sexual generation in plants from the asexual, and is terminal in the history of the sexual cells in animals. It must be noted also that all the cells of the malignant new-growths do not undergo the reducing division; a certain number differentiate in the direction of the tissue